



Armed Forces College of Medicine

AFCM



GOOD
morning

A large, stylized text "GOOD morning" is centered against a background of abstract, overlapping paint splatters in shades of blue, purple, and pink. The text is written in a white, flowing font. A faint watermark "canva.com" is visible in the background.



Pathology of non neoplastic skin disorders

By

Noha El Anwar

Ass. Professor of pathology

INTENDED LEARNING OBJECTIVES (ILO)



By the end of this lecture the student will be able to:

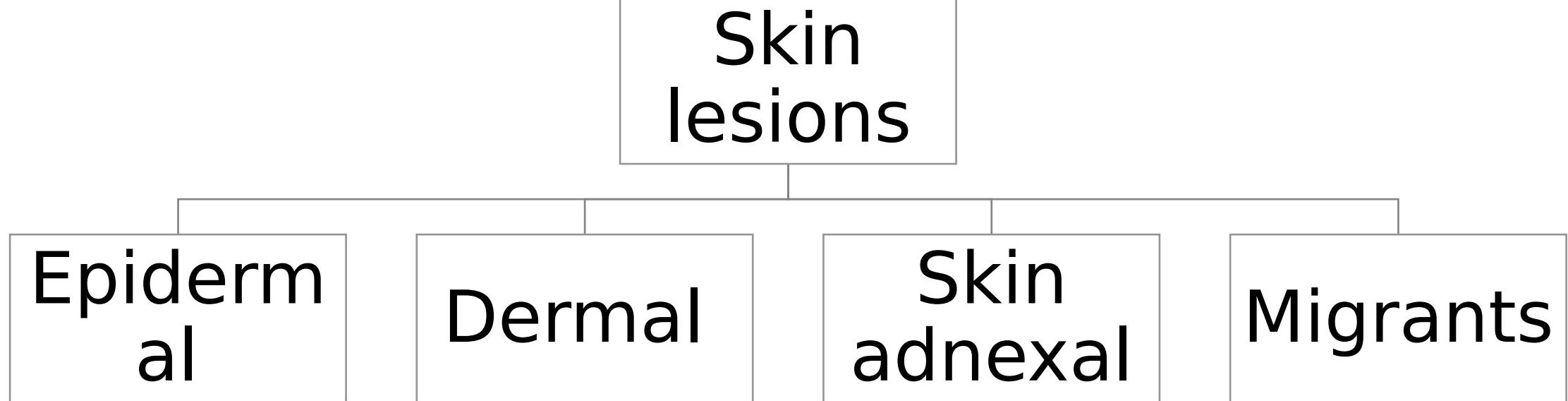
1. Define gross and microscopic terms applied in skin pathology.
2. Discuss the pathology of non neoplastic skin lesions.
3. Analyse the given clinical and laboratory findings to reach diagnosis of pathological conditions related to non neoplastic skin lesions
4. Classify neoplastic skin disorders into benign, locally aggressive and malignant.
5. Describe pathology of neoplastic skin lesions

Lecture Plan



1. Part 1 (5 min) classification of skin lesions
2. Part 2 (35 min) Macroscopic and microscopic terms
3. Part 3 (5 min) Tumor like lesions and epithelial skin cysts
4. Lecture Quiz (5 min)

Classification of skin lesions





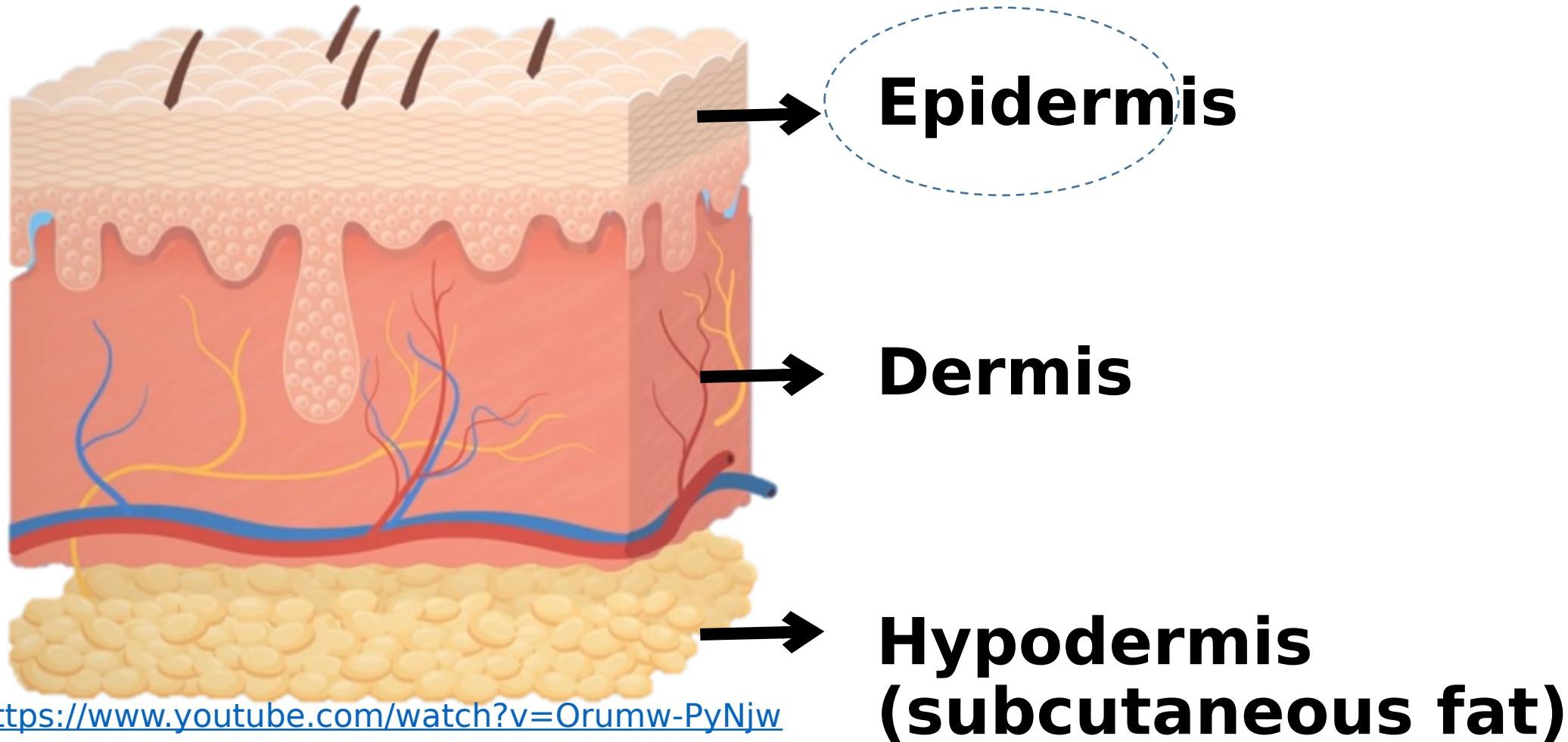
Components:

- **Squamous epithelial cells (keratinocytes)** constitute the majority of epidermal cells and synthesize the keratin mechanical barrier.
- **Melanocytes** produce melanin pigment to screen ultraviolet (UV) light.
- **Dendritic cells** (called Langerhans cells in the epidermis) process and present antigen to activate the immune system
- **Merkel cells** also reside in the epidermal basal layer.

Skin adnexa:

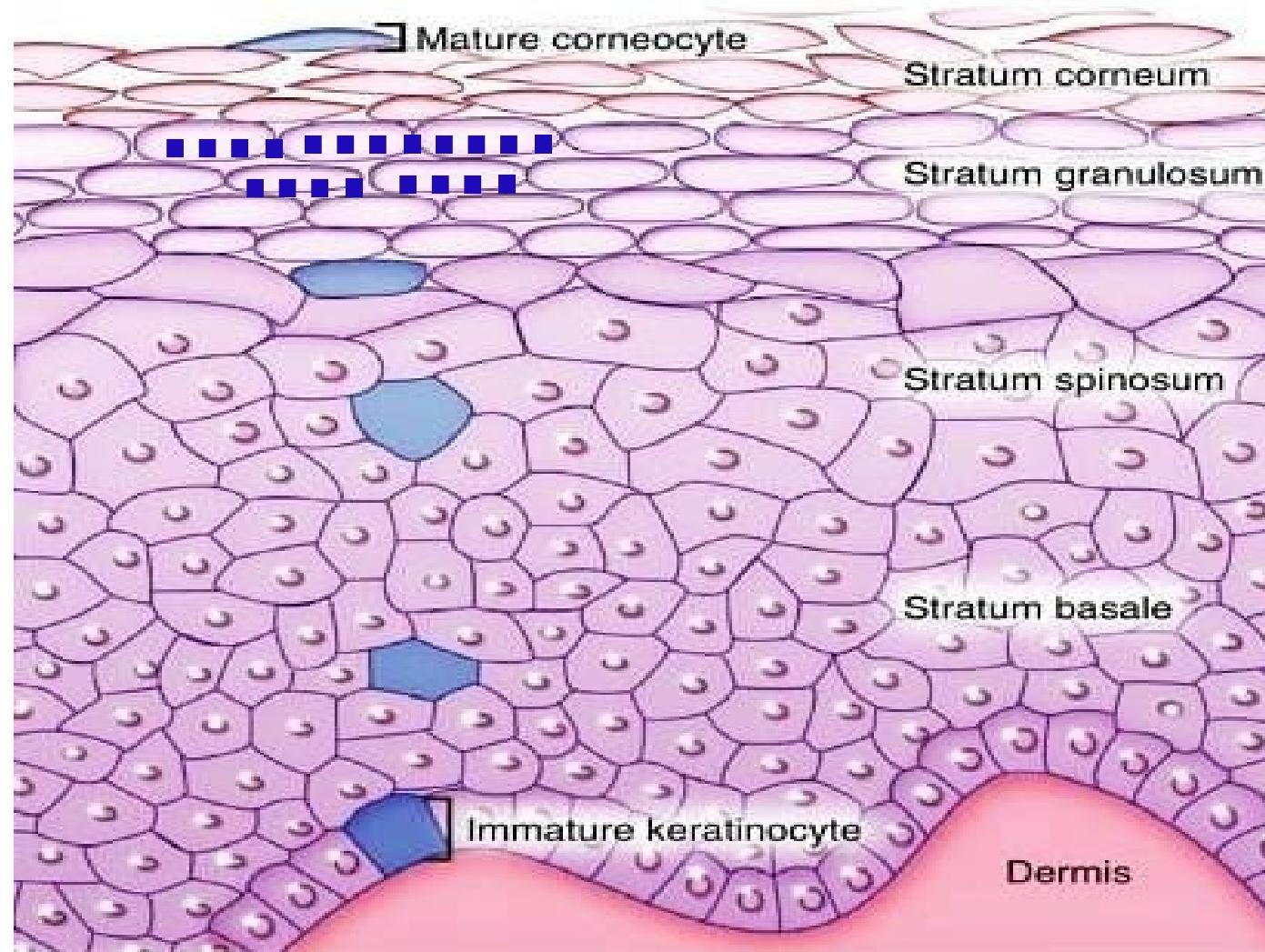
- **Sweat glands, sebaceous glands & Hair follicles**

Normal skin





Normal skin



[https://
www.pinterest.com/
summerekelund/
histology-skin/](https://www.pinterest.com/summerekelund/histology-skin/) 9

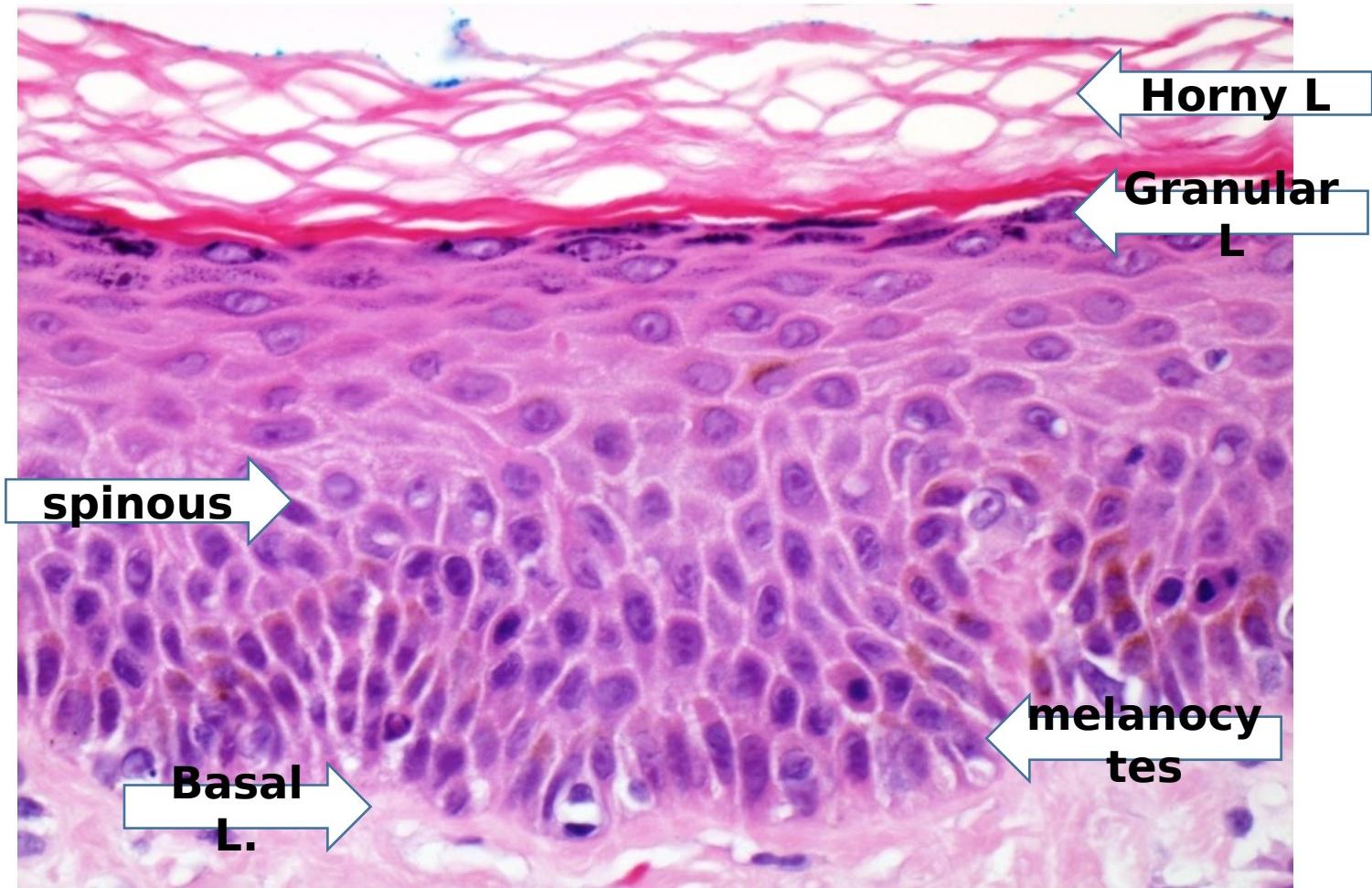


Normal skin

Epidermis

Keratinocytes

- **Horny layer**
- **Granular layer**
- **Spinous cell layer**
(polyhydral cells, eosinophilic)
- **Basal layers** (single layer of columnar cells perpendicular to BM, basophilic, scattered melanocytes in between)



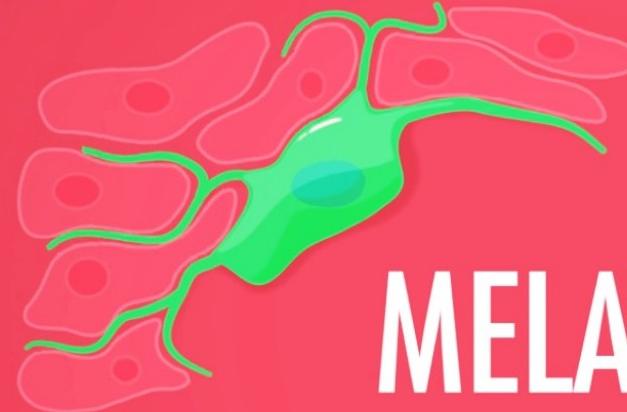
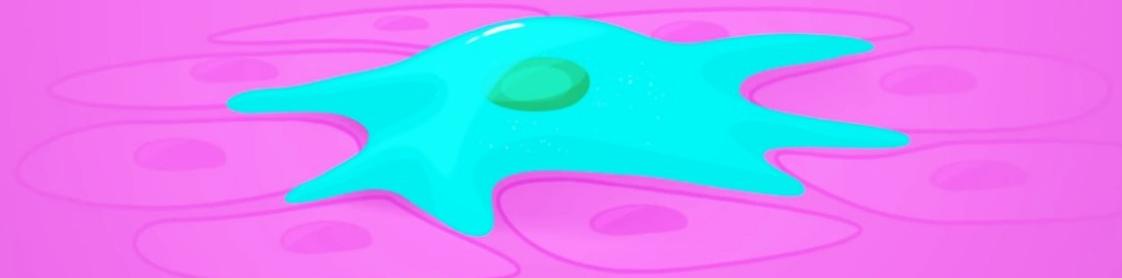
KERATINOCYTES

> the building blocks of the tough, fibrous protein keratin



LANGERHANS CELLS

> ingesting the unwanted invaders



MELANOCYTE

> synthesizes melanin

MERKEL CELLS

> combine with nerve endings to create a sensory receptor for touch





Macroscopic terms

- **Vesicle** Elevated fluid-filled lesion less than 5 mm
- **Bulla** Elevated fluid-filled lesion more than 5 mm
- **Macule** Flat, circumscribed area 5 mm or more distinguished by coloration
- **Nodule** Elevated dome-shaped lesion with depth up to 2 cm
- **Papule** Elevated lesion 5 mm or more
- **Pustule** Discrete, pus-filled raised lesion
- **Wheal** Pruritic, elevated, erythematous lesion secondary to dermal edema

Define gross and microscopic terms applied in skin pathology.

Complete

- ❖ Flat, circumscribed area 5 mm or more distinguished by coloration is.....

Macule

- ❖ Discrete, pus-filled raised lesion is

Pustule





Macroscopic terms



Wheal



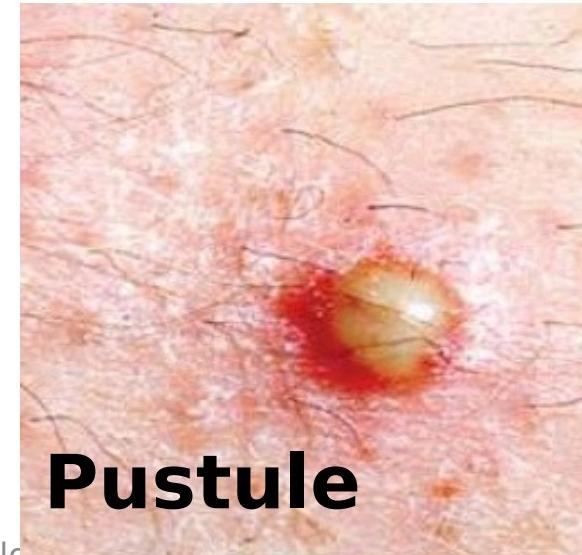
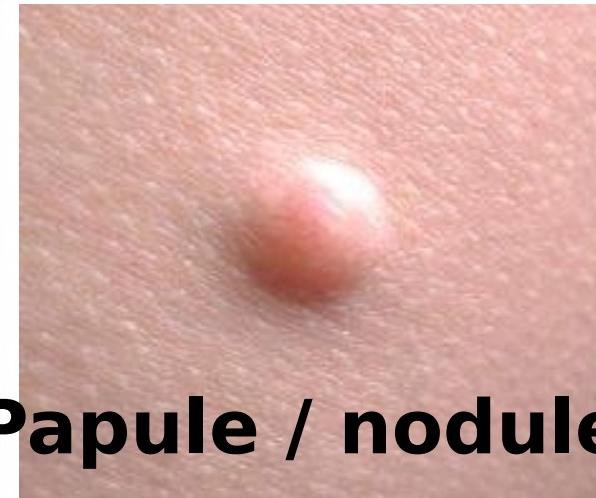
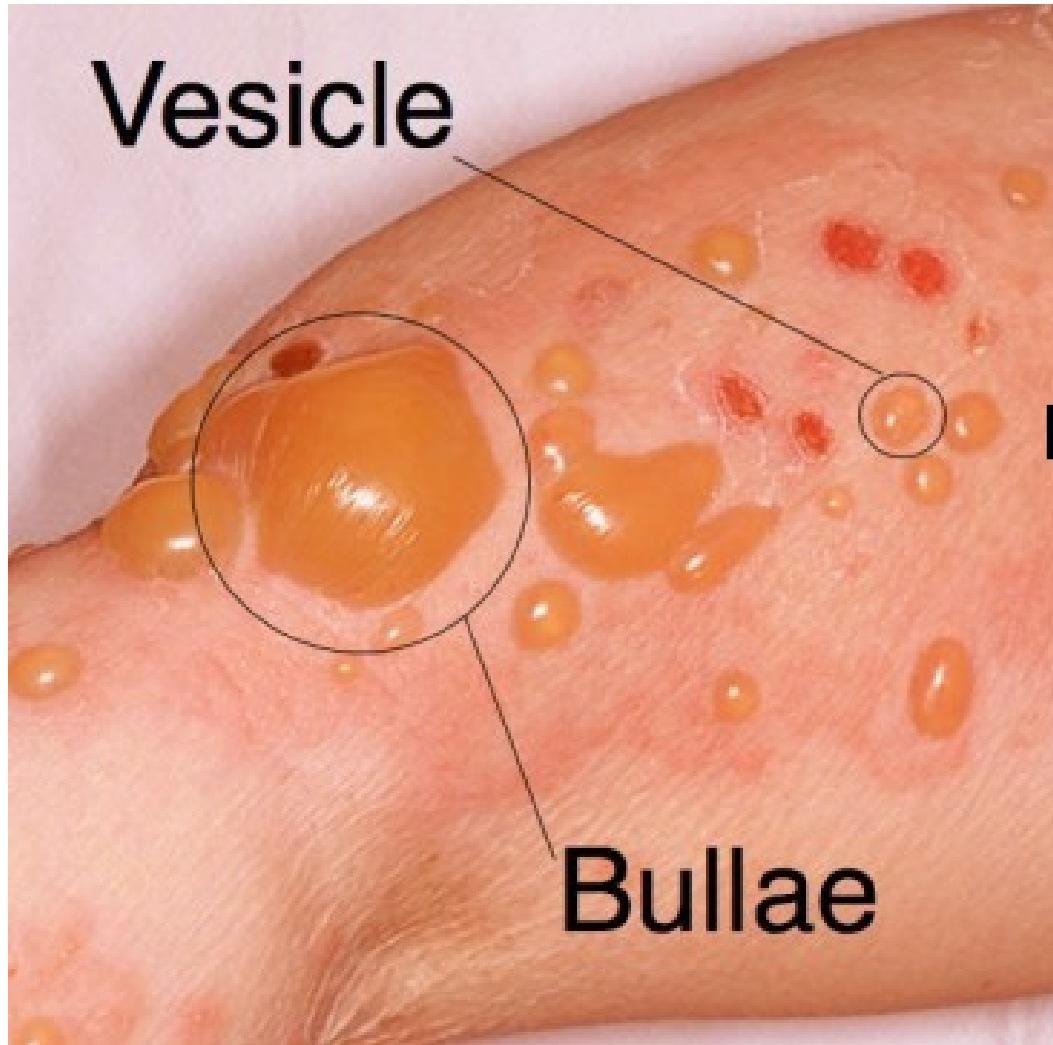
Macule

<http://tinambarber.info/736b696e/skin-wheal.html>

[https://www.studyblue.com/notes/note/n/describing
-skin-lesions/deck/152306](https://www.studyblue.com/notes/note/n/describing-skin-lesions/deck/152306)



Macroscopic terms



<https://www.cram.com/flashcards/final-2376889>

<https://ui-ex.com/explore/bullock-clipart-vesicle/>

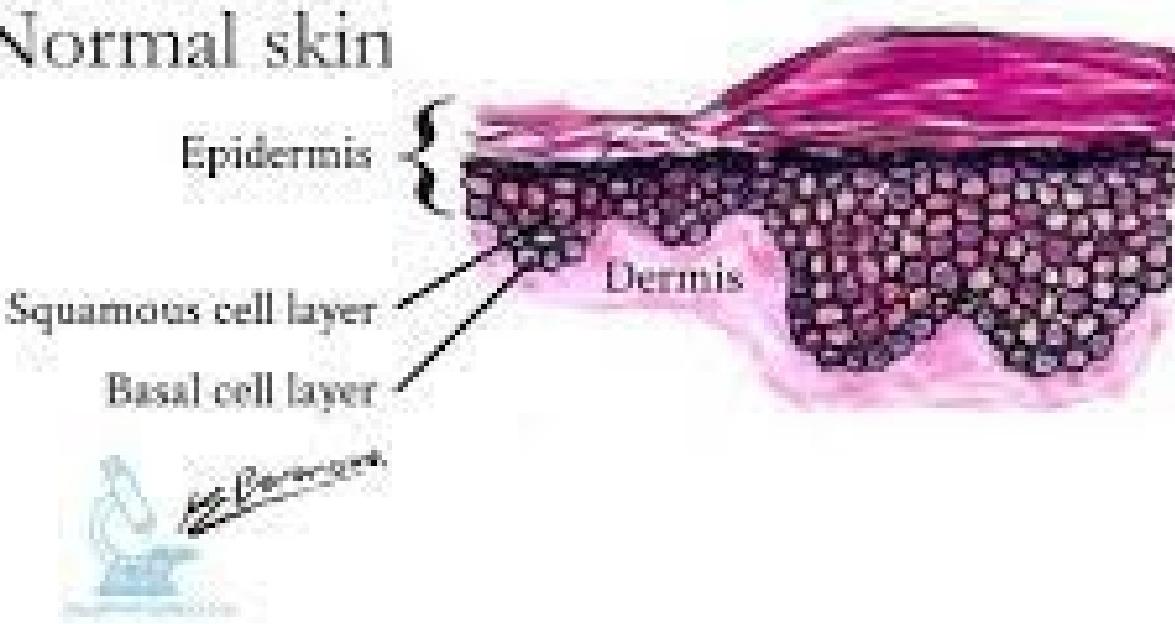
<https://www.memorangapp.com/flashcards/168276/MS3%20A+Derm+Vocab/>

Microscopic terms

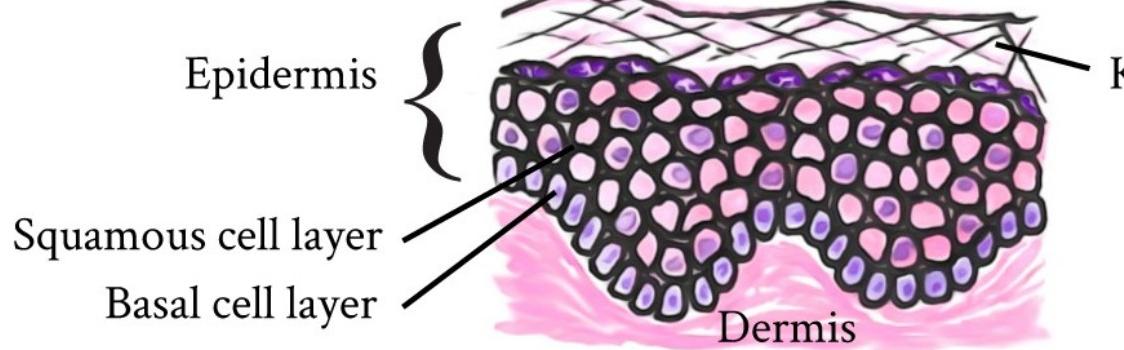


- **Acanthosis** Epidermal hyperplasia
- **Hyperkeratosis** Stratum corneum thickening, often with aberrant keratinization
- **Parakeratosis** Stratum corneum keratinization with retained nuclei
- **Erosion** Focal incomplete epidermal loss
- **Ulceration** Focal, complete epidermal loss
- **Spongiosis** Epidermal intercellular edema

Normal skin

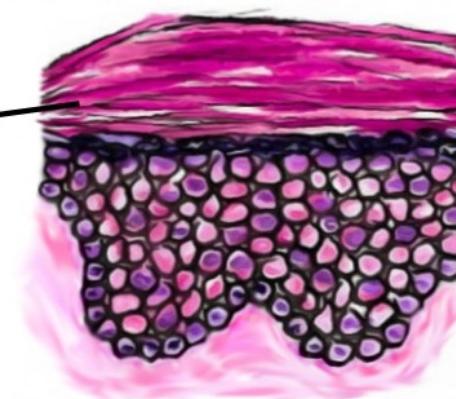


Normal skin



Acanthosis

Thickening of the epidermis caused by an increased number of squamous cells

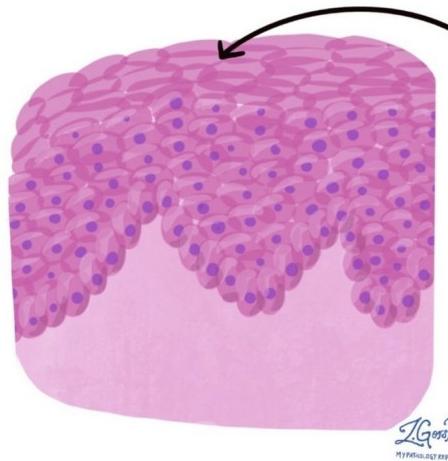


Hyperkeratosis

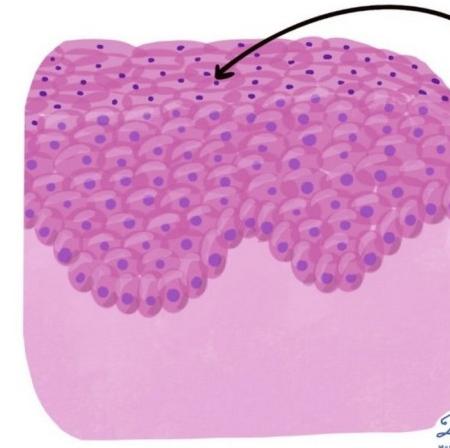
Thickening of the keratin layer



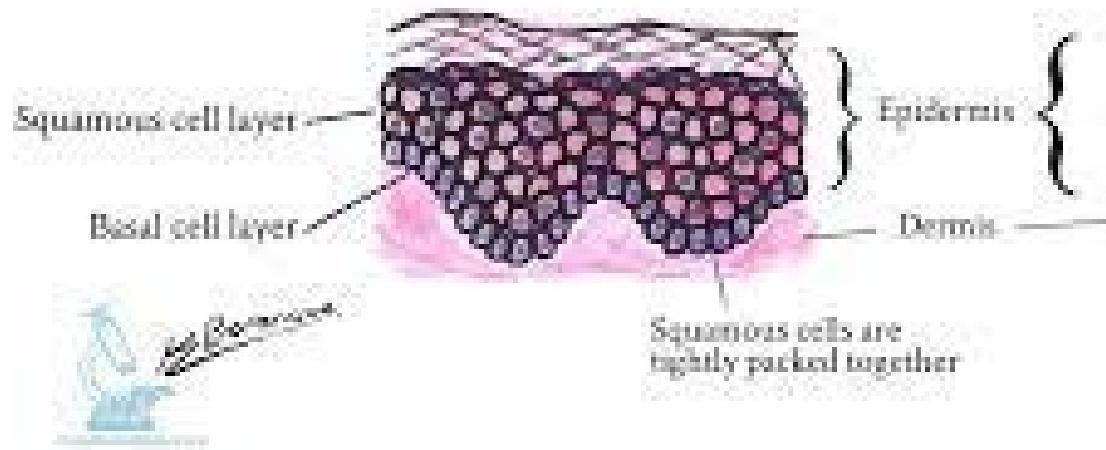
NORMAL



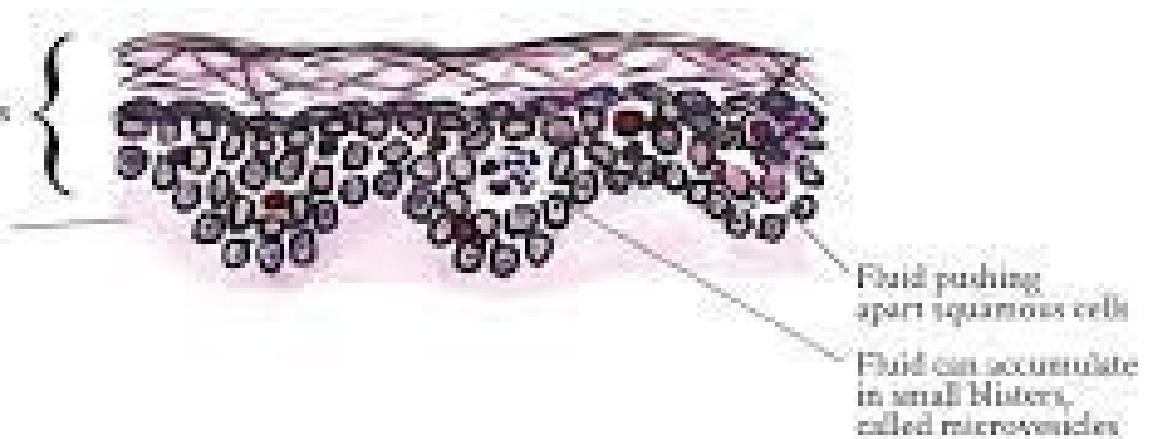
PARAKERATOSIS



Normal skin



Spongiosis



Examples of tumor like skin les

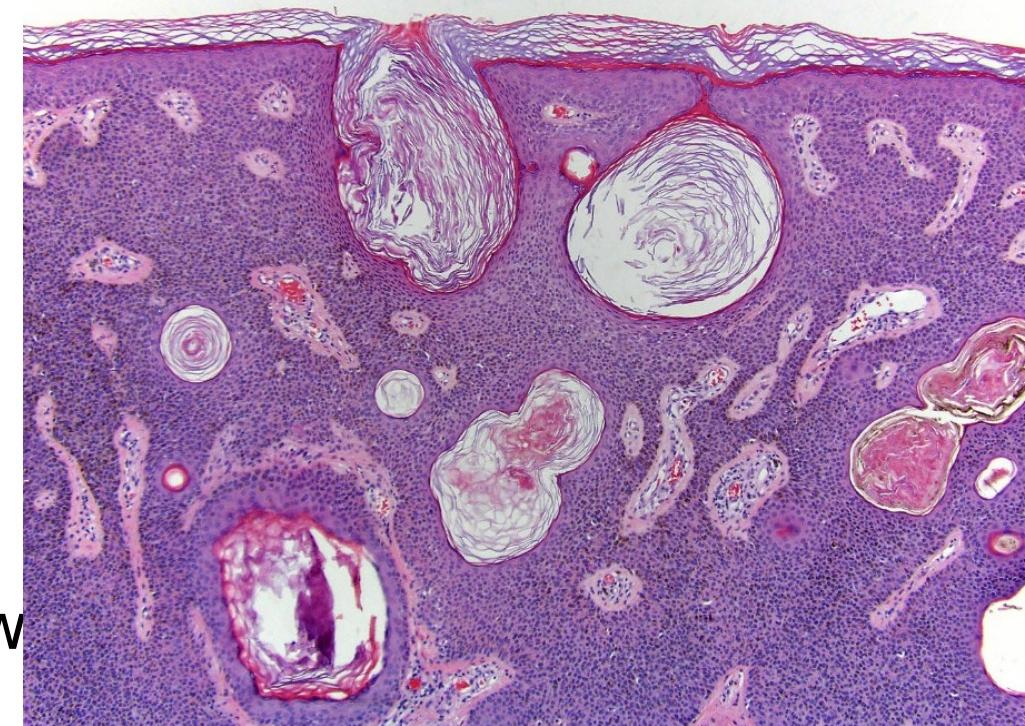
- **Seborrheic keratosis :**

- Common, benign keratinocyte proliferation of middle aged and elderly
- Occur on the trunk, head, neck, and the extremities.

Clinical: waxy, brown slow growing papule

Histologic:

-Proliferation of basaloid keratinocytes with atypia





Epithelial skin cysts

- Epithelial cysts are common lesions
- Presenting as **well-circumscribed**, **firm** **subcutaneous nodules** formed by down growth and cystic expansion of epidermal or follicular epithelium.



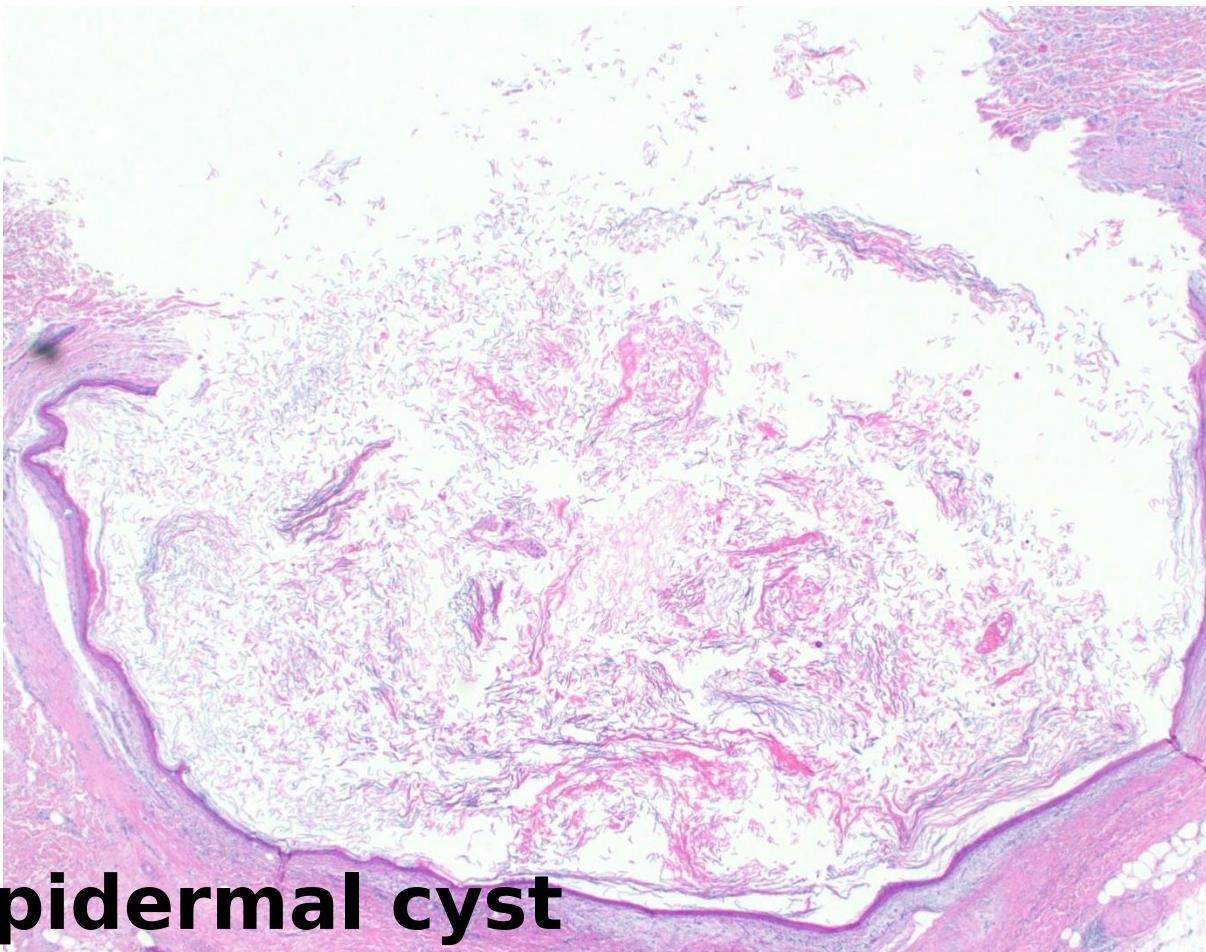
Epithelial skin cysts

Lesions are filled with **keratin** and variable amounts of **lipid** and debris from sebaceous secretions; they are subclassified based on the **cyst wall** characteristics:

- **Epidermal cyst**: Wall is identical to normal epidermis.
- **Pilar (trichilemmal) cyst**: Wall resembles follicular epithelium (i.e., without a granular cell layer).



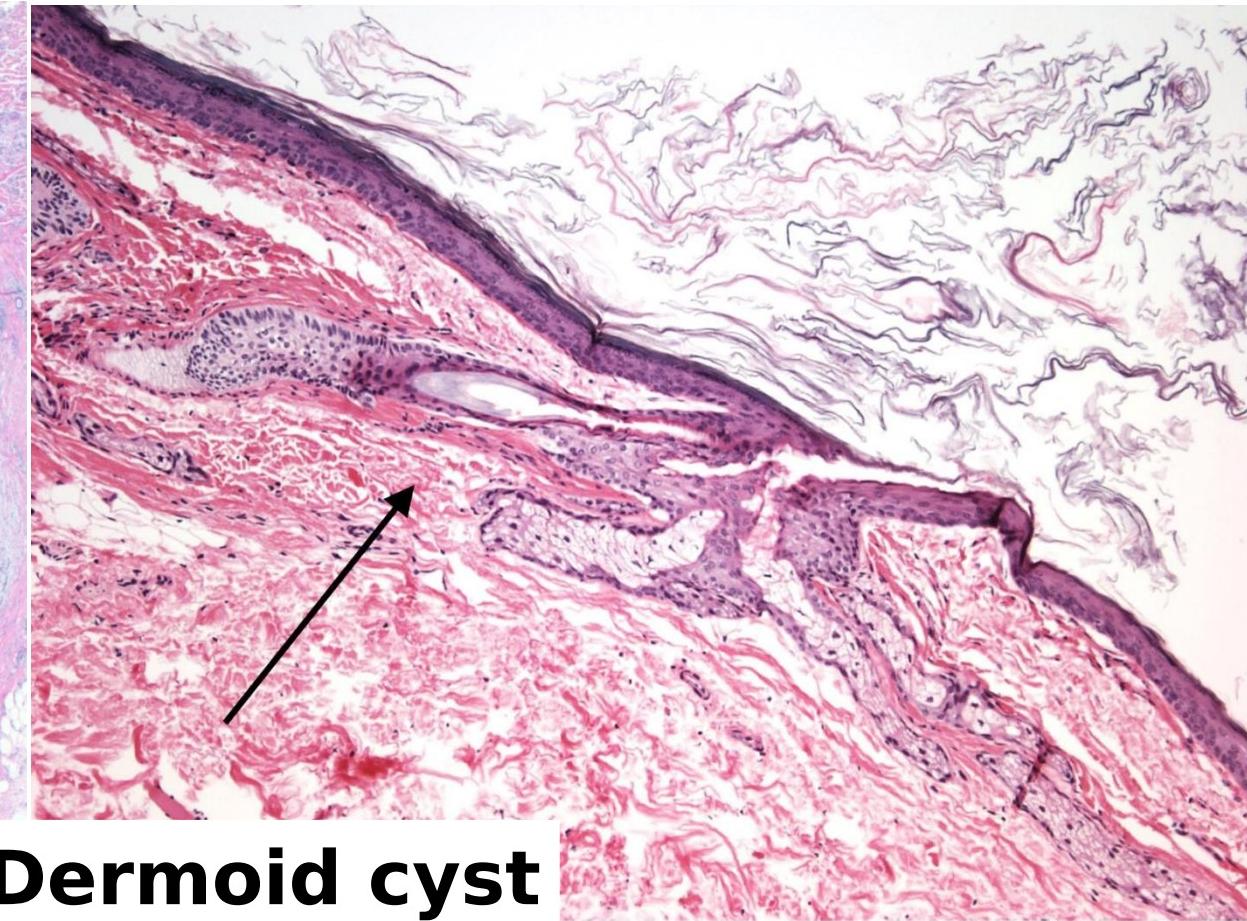
Epithelial skin cysts



Epidermal cyst

<http://www.pathologyoutlines.com/topic/skintumor/nonmelanocytickeratinouscystepidermal.html>

06/11/2024



Dermoid cyst

<http://www.pathologyoutlines.com/topic/skintumor/nonmelanocyticdermoidcyst.html>

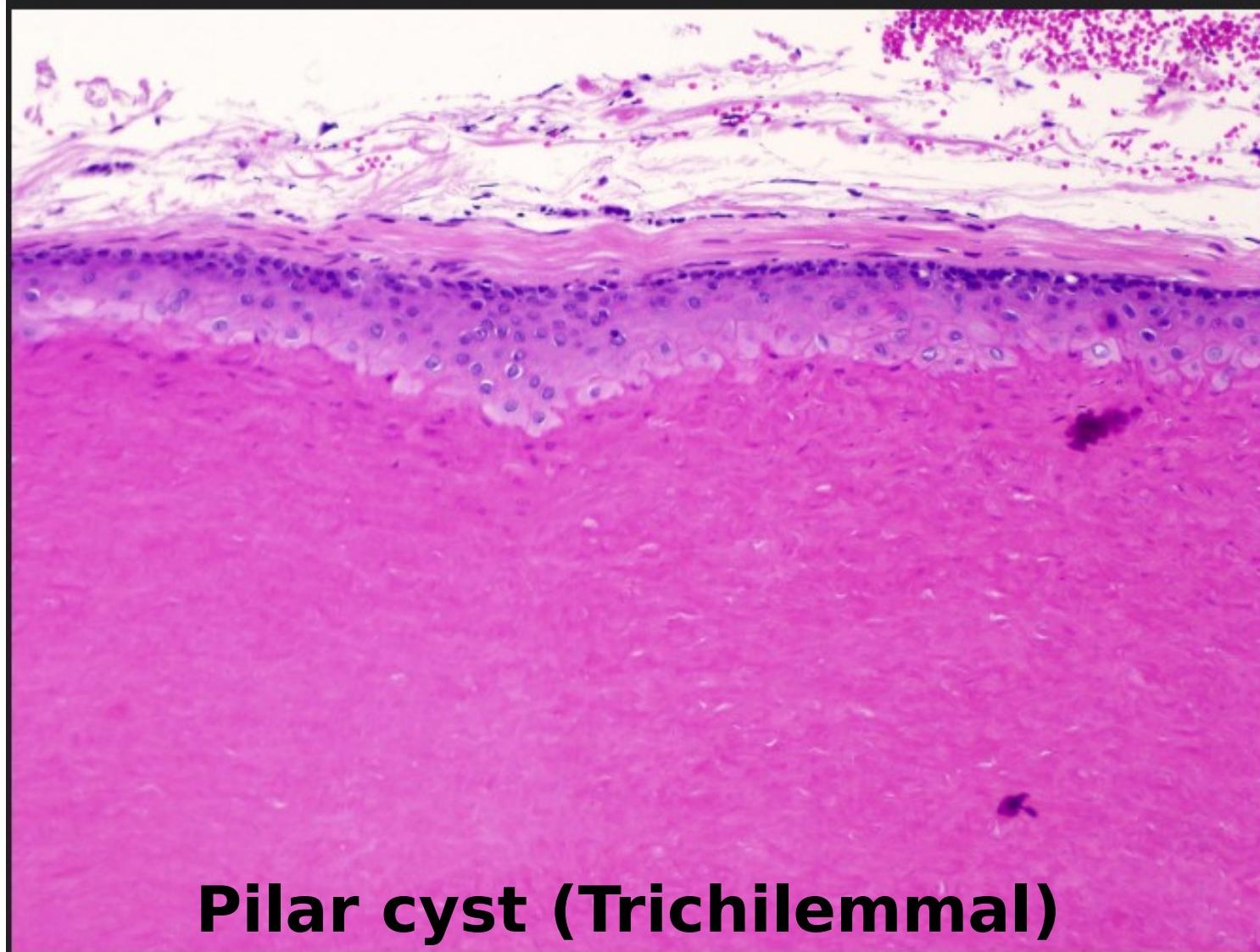
Pathology Department

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Epithelial skin cysts



<http://www.pathologyoutlines.com/topic/skinumornonmelanocytickeratinouscysttrichilemmal.html?mobile=off>



Tumors of epidermis

- **Benign**

Squamous cell papilloma.

- **Locally malignant**

Basal cell carcinoma

- **Malignant**

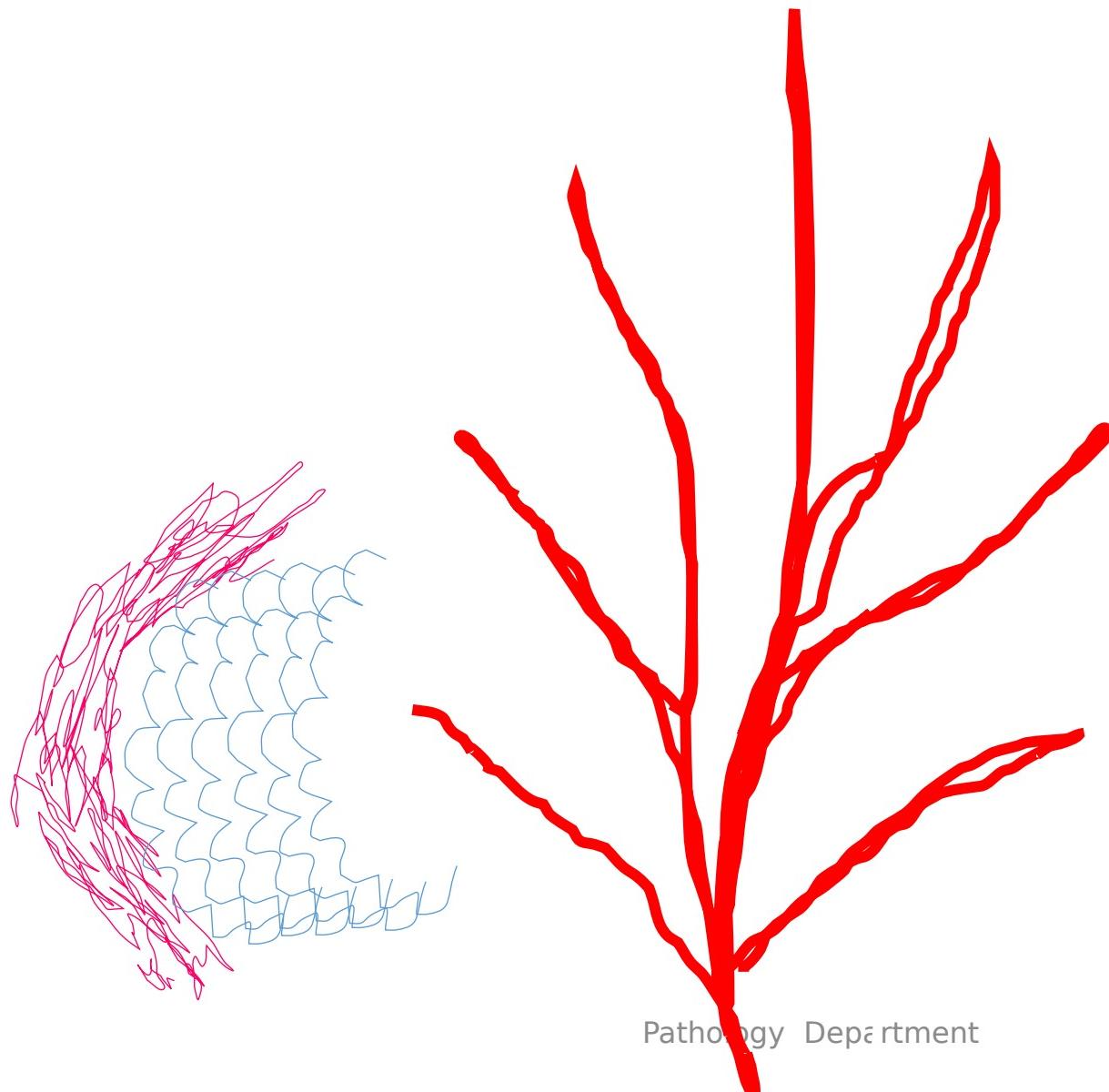
Squamous cell carcinoma



Squamous cell papilloma

What is a papilloma?

Epithelial tumor forming gross or microscopic fingerlike projections



Benign skin tumors



Squamous cell papilloma (warts /verrucae)

caused by human papilloma virus (HPV).

- **Gross picture:**

Verrucae vulgaris (common wart) are exophytic growths which occur anywhere on the skin, mostly on fingers.

- Genital warts with low malignant potential are caused by distinct HPV types (low-risk types, e.g., **HPV-6 and HPV-11**).
- Cervical squamous cell cancers contain HPV **types 16 or 18** in more than 90% of cases.

Benign skin tumors



Squamous cell papilloma (warts /verrucae)



<https://nhathuoctrongsinh.com/sui-mao-ga-o-mat-nhung-dau-hieu-nguy-hiem-khong-the-boqua/>
06/11/2024



<https://step2.medbullets.com/dermatology/120054/cutaneous-warts-verrucae>

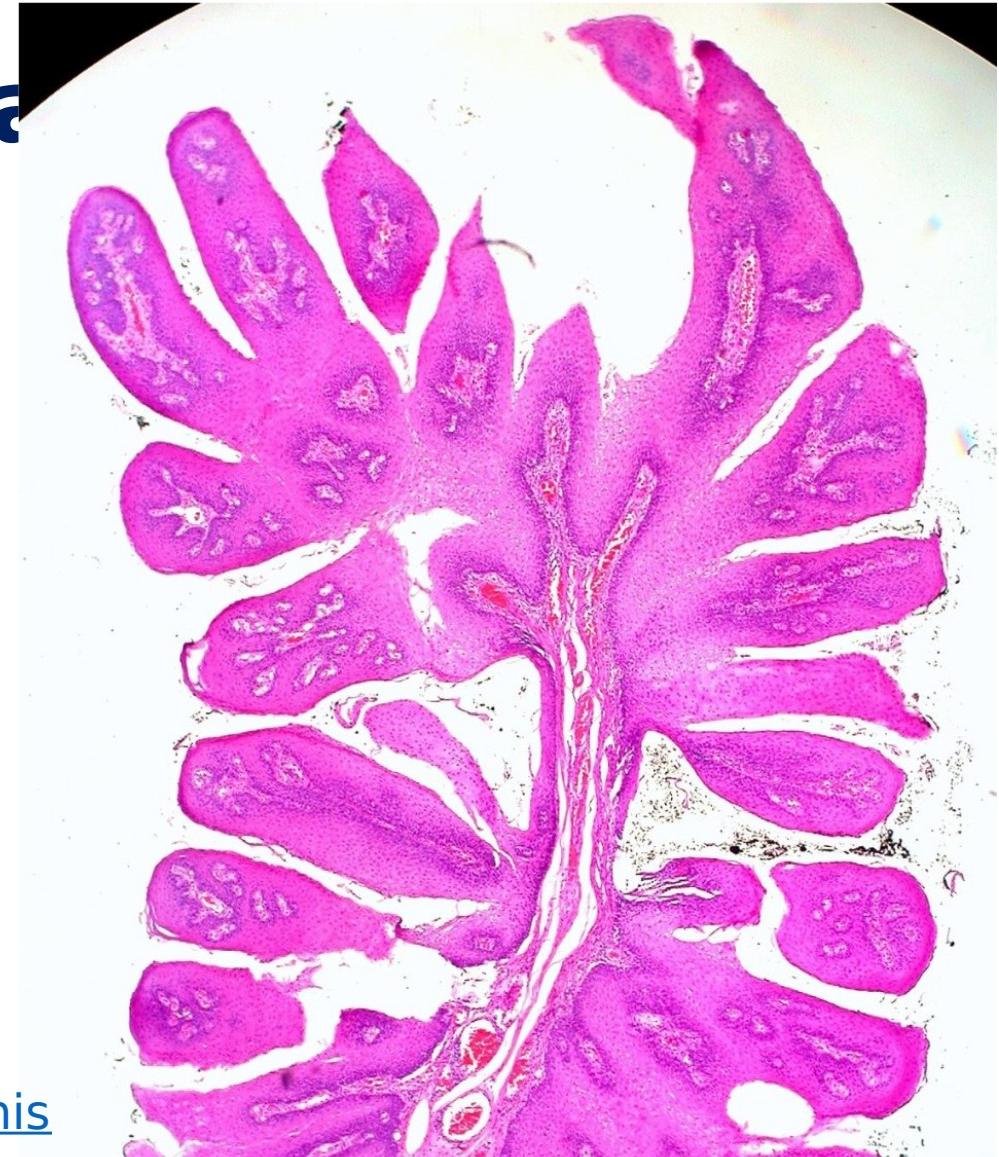
Benign skin tumors



Squamous cell papilloma (warts /verrucae)

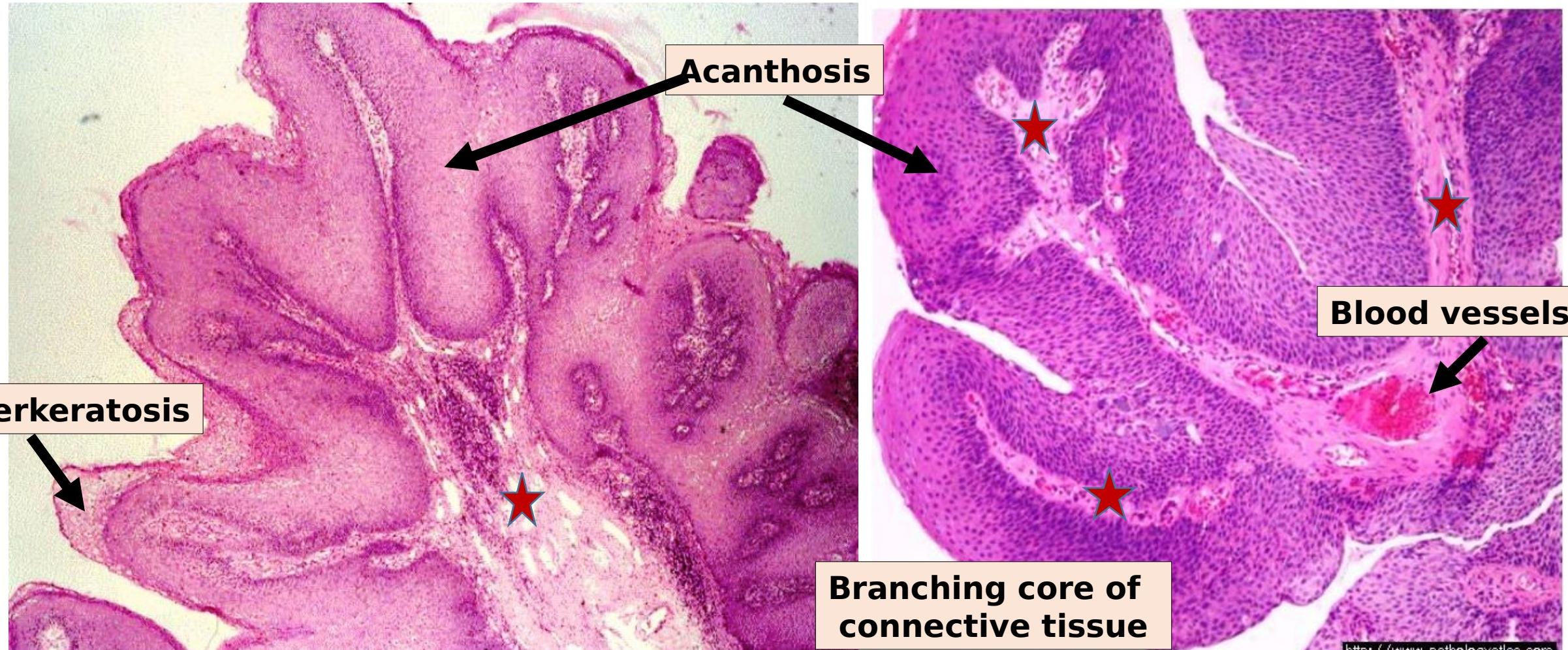
Microscopic picture

- Branching vascularized connective tissue core
- Covered by thickened keratinized stratified squamous epithelium.





Benign skin tumors



Quiz



True or false

1. Pus filled raised skin lesion is a
papule

2. Dermoid cyst wall is identical to the
epidermis

Quiz



True or false

- 1. Pus filled raised skin lesion is a ~~papule~~ pustule**
- 2. Epidermal ~~Dermoid~~ cyst wall is identical to the epidermis**

- **Seborrheic keratosis and cutaneous horn:** are tumor like skin lesion

Epithelial skin cysts: Lesions are filled with keratin and variable amounts of lipid and debris from sebaceous secretions; they are subclassified based on the cyst wall characteristics:

- **Epidermal cyst:** Wall is identical to normal epidermis.
- **Pilar (trichilemmal) cyst:** Wall resembles follicular epithelium (i.e., without a granular cell layer).
- **Dermoid cyst:** Wall is similar to epidermis





Thank
you



SUGGESTED TEXTBOOKS

1. Pocket companion to Robbins and Cotran Pathologic Basis of Disease eighth edition, 2017, ISBN: 978-1-4160-5454-2
(P590-611)
2. Kaplan Step 1 Pathology Lecture Notes 2017 (P.78-98)